DAIKIN

AIR CONDITIONING

Ventilation

HRV – Heat Reclaim Ventilation

FXMQ-MFV1 – Outdoor Air Processing Unit

VRV+EXV-kit – VRV Air Handling Applications

R-410A

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Daikin Europe NV

Daikin Europe N.V.

Daikin has a worldwide reputation based on over 70 years' experience in the successful manufacture of high quality air conditioning equipment for industrial, commercial and residential use.

In all of us, a green heart

Environmental Awareness

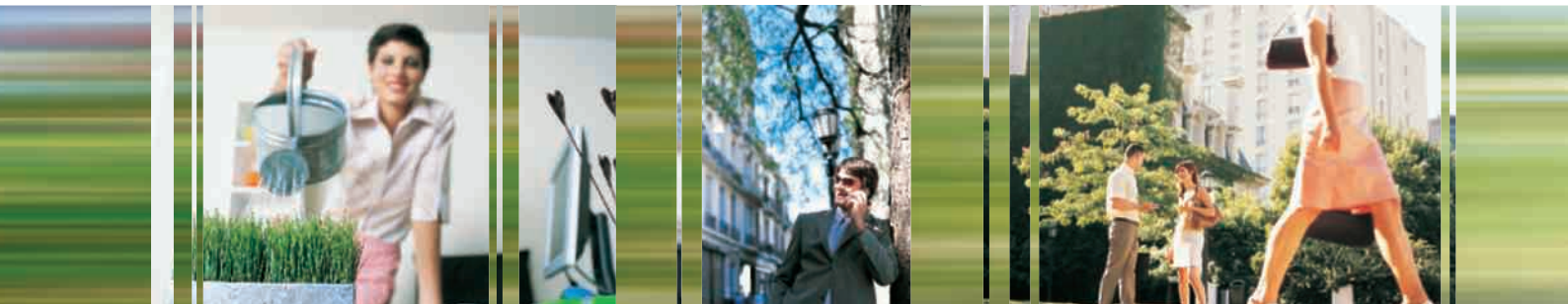
Enhancing the present - safeguarding the future

Throughout the last 50 years or so the basic building blocks of life - air, water and the earth - have been systematically subjected to increasing levels of pollution with little regard to their potentially devastating effects on future generations.

Recently however, concern has grown regarding climate changes, acid rain, water and air pollution and the constant degradation of Earth's natural resources. The very technology that created these problems is now being harnessed to halt and reverse them. Depletion of the ozone layer and global warming have been highlighted and are now being addressed. Government legislation prohibiting the use of toxic substances and the generation of pollutants has slowed down the destruction of the environment.

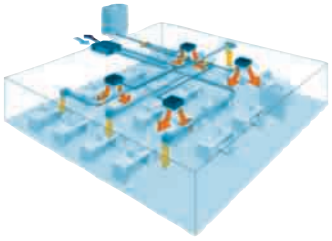
Daikin Europe is proud to have been pro active in this respect, closely following its Japanese parent in implementing policies that have often pre-empted official legislative codes and directives. As a result, a culture of "environmental management" has since 2001, played a key role in the company's day to day activities and development strategies.

Top management commitment is reflected in the establishment of a number of action plans, which are now strictly observed and implemented throughout the Daikin Group.



HRV - Heat reclaim ventilation

General (VAM+VKM) Features



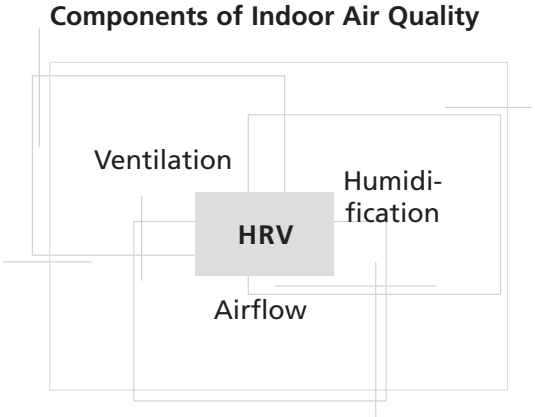
HRV helps create a high quality environment by interlocking with the air conditioning system

The Daikin HRV (Heat Reclaim Ventilation) recovers heat energy lost through ventilation and holds down room temperature changes caused by ventilation, thereby maintaining a comfortable and clean environment. This also reduces the load on the air conditioning system and conserves energy.

In addition, the HRV interlocks with Daikin's VRV system, Sky Air and other air conditioning systems and automatically switches over ventilation mode, further increasing the effects of energy conservation. HRV operation has been centralised on the air conditioner remote control allowing total control over air conditioning and ventilation via a simple configuration.

The current line-up includes models with DX coil and/or humidifier - the DX coil helps prevent the direct impact of cold airflow upon personnel during the heating cycle and vice versa. High static pressure enhances design flexibility.

Components of Indoor Air Quality



Features of the VKM unit

- Humidifier
- DX coil
- High static pressure

Line-up

Air flow rate (m³/h)	150	250	350	500	650	800	1000	1500	2000
VAM-FA Ventilation	✗	✗	✗	✗	✗	✗	✗	✗	✗
VKM-GAM: Ventilation, DX coil & humidifier				✗		✗	✗		
VKM-GA: Ventilation & DX coil				✗		✗	✗		

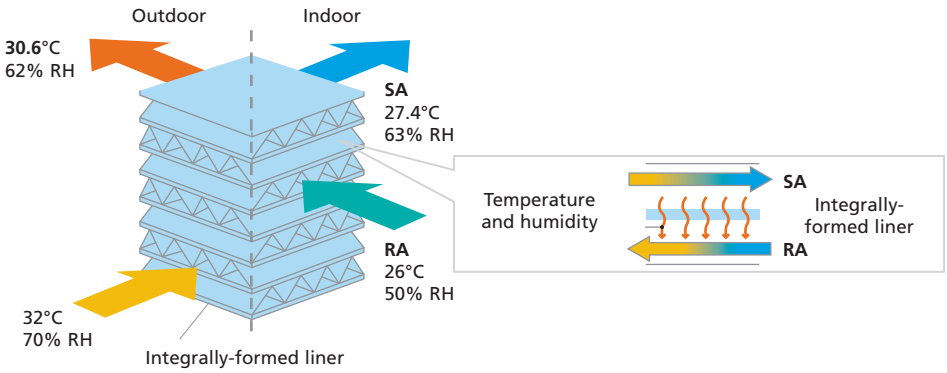
1 Energy Efficiency

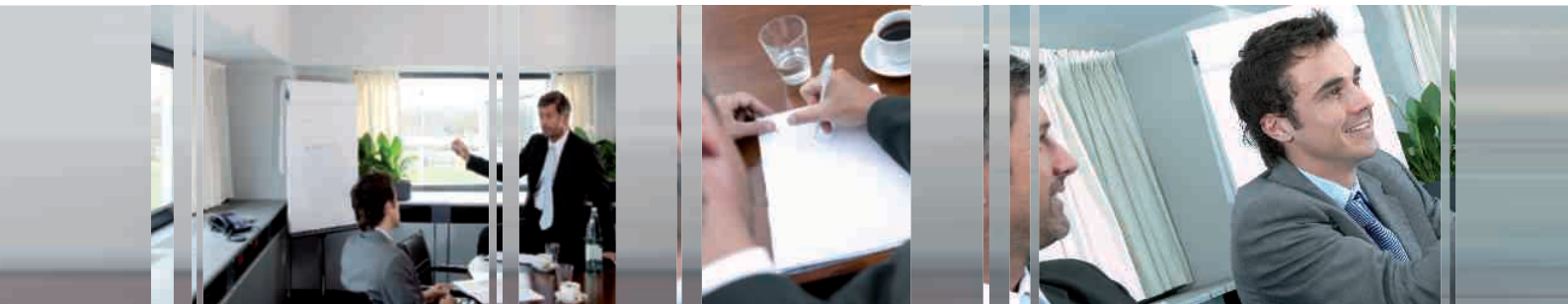
- **Over 30 % Size Reduction**
  Use of the high efficiency paper (HEP) element and optimized design of the fan and airflow passages have resulted in matchless compactness without detriment to the 28% or so reduction in air conditioning load achieved by previous models. A reduction of up to 40mm in height allows the main unit to fit easily into limited spaces such as ceilings.
  On average 28 % air conditioning load reduction (maximum 40 %):
  - 20% by operating in total heat exchange mode (in comparison with normal ventilation fans)
  - a further 6 % by auto-ventilation mode changeover switching
  - a further 2 % by pre-cool, pre-heat control (reduces air conditioning load by not running the HRV while air is still clean soon after the air conditioner is switched on.)

Note: the values mentioned above may vary according to weather and other environmental conditions at the location of the unit's installation

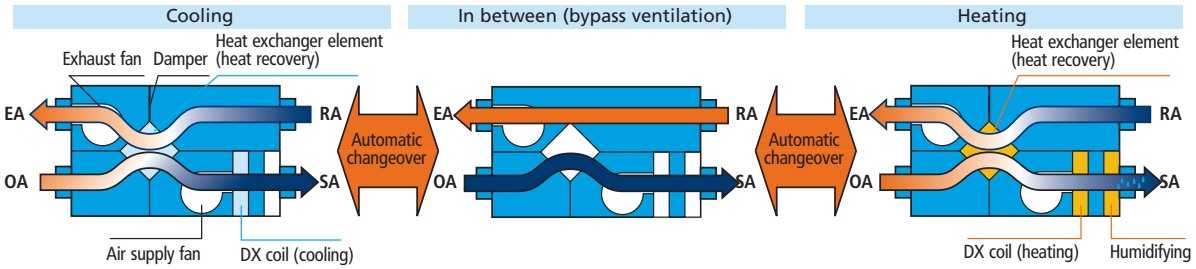
- **Proprietary Developed HEP Element**
  The heat exchange element uses a high efficiency paper (HEP) possessing superior moisture absorption and humidifying properties. The heat exchange unit speedily recovers heat contained in latent heat (vapour). The element is made of a material with flame resistant properties and is treated with an anti-moulding agent.

Operation of the heat exchanger element





- **Automatic Changeover to Efficient Operation Patterns**
  Operation automatically switches to the optimum pattern to suit prevailing conditions

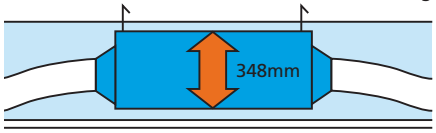


2 Design Flexibility

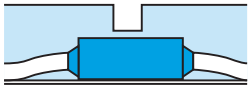
- **Outdoor Operation Temperature down to -15°C**
  If the outdoor air suction temperature falls below -10°C, the unit switches to intermittent operation to prevent freezing of the heat exchanger element and dew condensation within the unit.
  Intermittent operation = a thermistor (standard equipment) within the unit detects the outdoor air temperature. Unit operation varies according to the detected temperature.

- **Slim Design**
  The slim design of the HRV unit enables it to be mounted in narrow ceiling voids and irregularly shaped spaces.

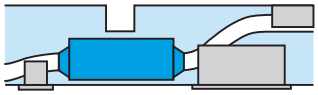
- Installation under the floor of a small building

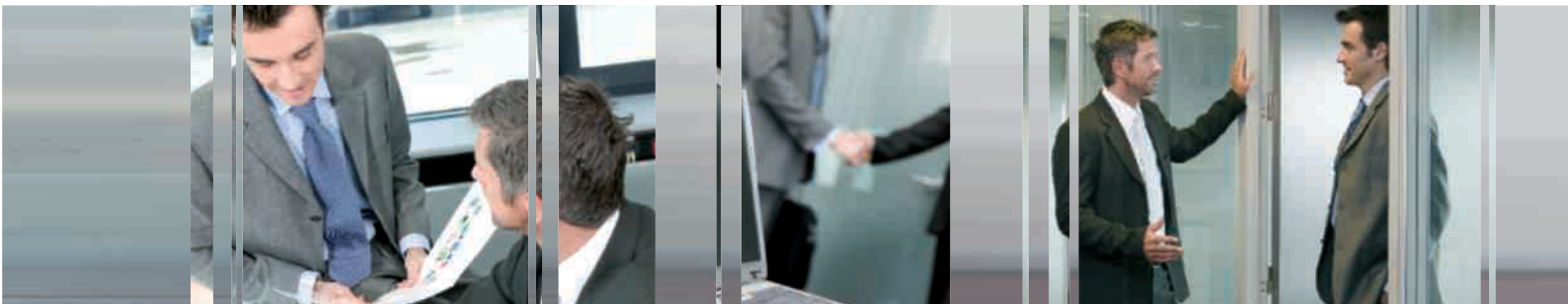


- Installation under a beam

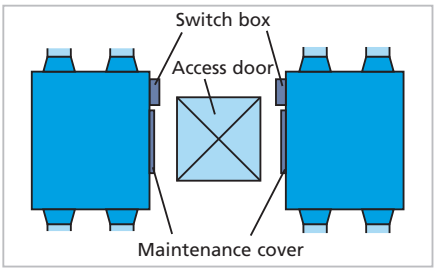


- Installation in an irregular space





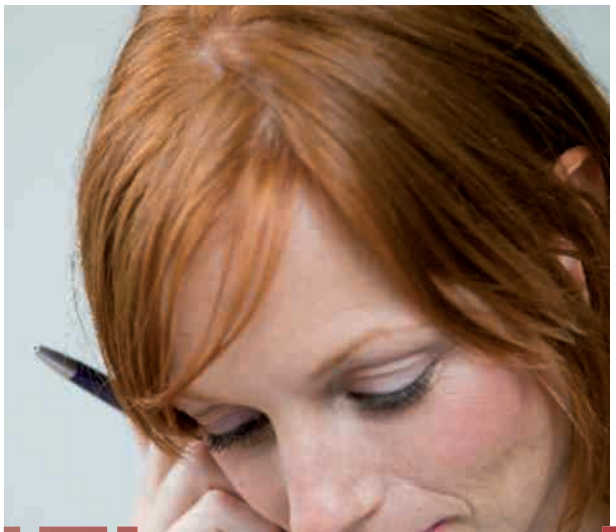
- **Simple Design and Construction**
  The unit can be installed either horizontally or upside down in accordance with the conditions of the location.
  A 450mm square inspection hatch enables maintenance and heat exchange element replacement to be performed with ease.



- **Quiet Operation**
  Sound pressure levels are remarkable low at 20.5dBA (VAM150FA)

dB(A)	Perceived loudness	Sound
0	Treshold of hearing	-
20	Extremely soft	Rustling leaves
40	Very soft	Quiet room
60	Moderately loud	Normal conversation
80	Very loud	City traffic noise
100	Extremely loud	Symphonic orchestra
120	Threshold of feeling	Jet taking off

Daikin units

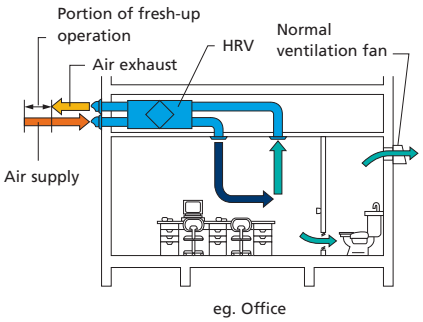


3 Clean Air

- **Fresh-Up Operation**
  The user can select between 2 fresh-up modes via the remote control

1. Supply rich mode:

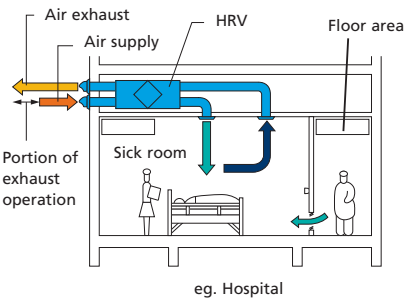
Raising the air supply maintains proper room pressure to prevent back-flow of toilet/kitchen odours or moisture inflow.



eg. Office

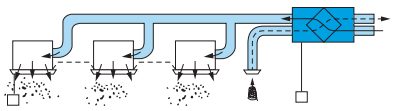
2. Exhaust fresh-up:

Raising exhaust air decreases room pressure to prevent the leaking of odours or floating bacteria into other rooms.



eg. Hospital

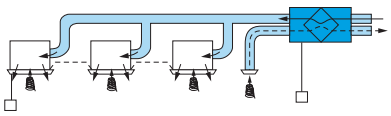
- **Dust Prevention**
  Prevents dust from falling thanks to directly mounted ducts



OFF Dust

With Competitors' Products

When conventional total heat exchange units, which are independently operated using a dedicated remote control, are directly connected by a duct, there is a possibility of dust falling from the air filter of the indoor unit when the air conditioner is OFF.



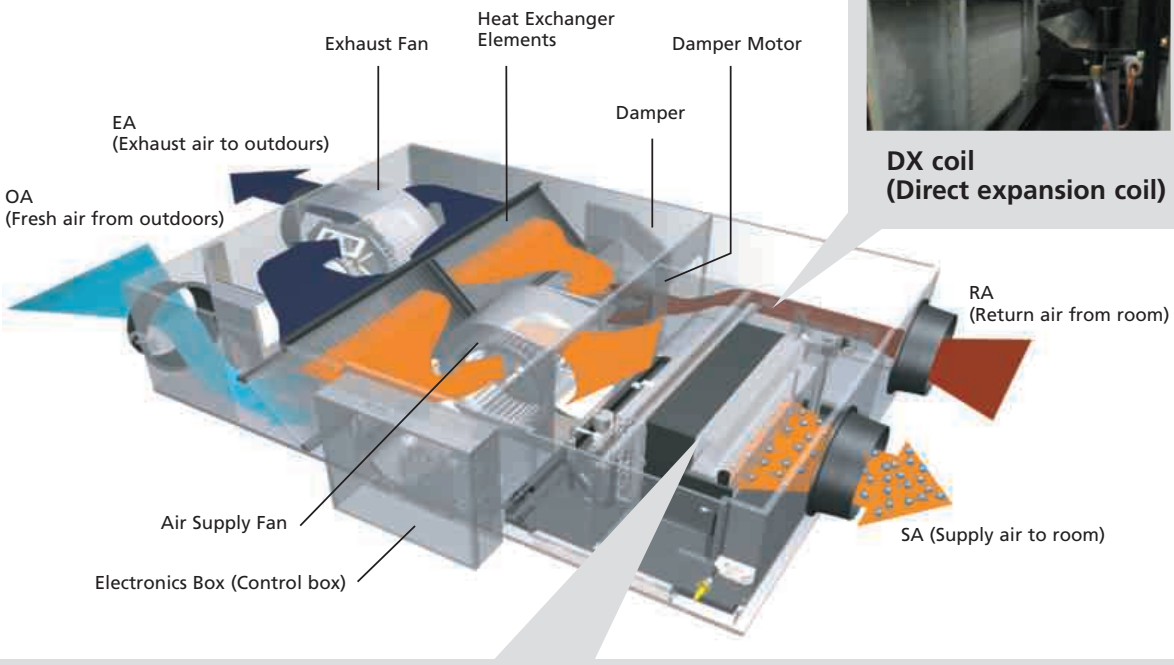
Blowing mode No dust is blown out

With HRV

When the HRV is operating independently, the fan in a interlocked indoor unit continues turning, so dust does not fall from the air filter.

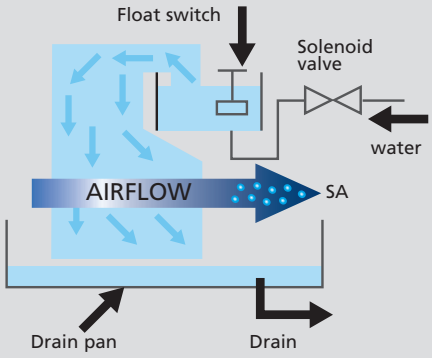
- **Filter Cleaning**
  A signal on the remote control indicates when the air filter needs cleaning

VKM Features



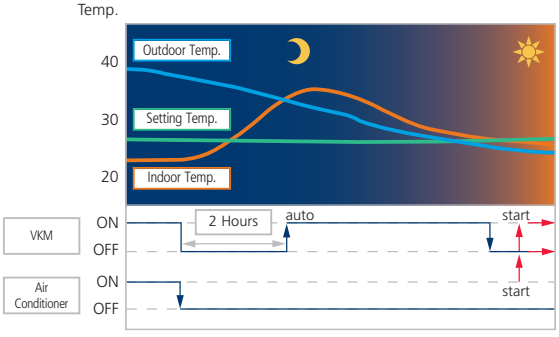
DX coil
(Direct expansion coil)

Humidifier element:
Utilizing the principle of capillary action, water is permeated throughout the humidifier element. The heated air from the DX coil passes through the humidifier and absorbs the moisture

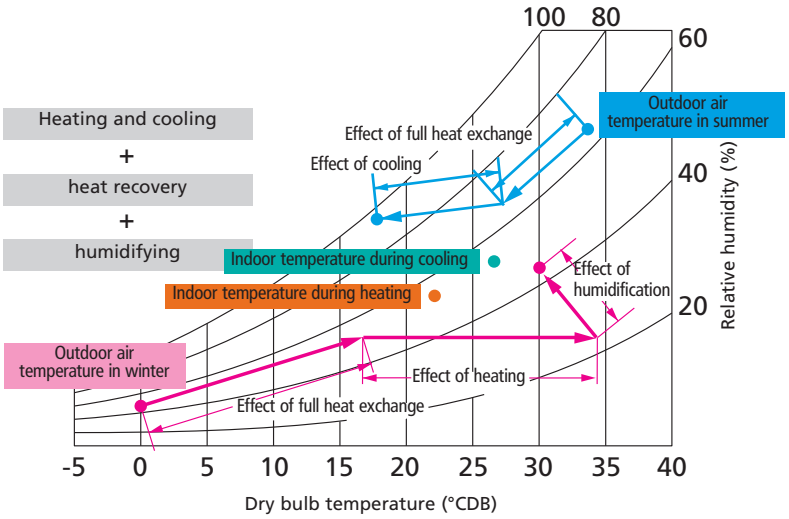


1 Energy Efficiency

- **Nighttime Free Cooling Operation**
  Nighttime free Cooling Operation is an energy conserving function operating at night when the air conditioning is switched off. By ventilating rooms containing office equipment that increases room temperature, night purge reduces the cooling load when air conditioning is switched on in the morning.
  - Nighttime free cooling operation works only if connected to Multi or VRV systems.
  - Nighttime free cooling operation is factory set to "off" but can be activated by your Daikin dealer on request.

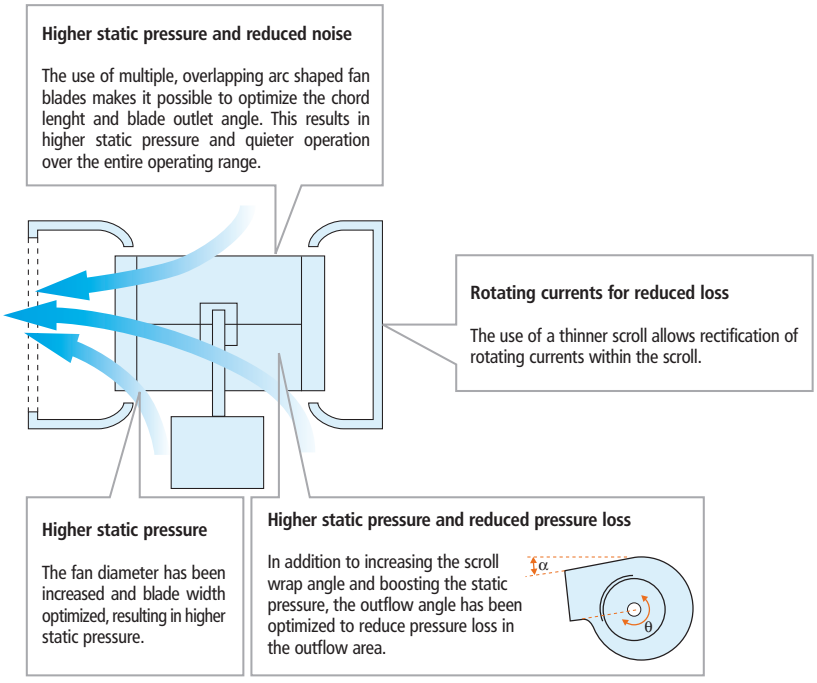


- **Efficient Outdoor Air Introduction with Heat Exchanger and Cooling/Heating Operation**
  Indoor unit with outdoor air treatment
  The temperature can be brought close to room temperature with minimal cooling capacity through the use of outdoor air



2 Design Flexibility

- **High Static Pressure**
  Modifications to the fan, including the use of multiple arc blades, a thinner scroll and optimized fan scroll angle, help to boost efficiency.
  Dramatically higher static pressure is achieved due to improved fan performance. This reduces limitations on unit location and allows more flexibility in duct design.


Higher static pressure and reduced noise
The use of multiple, overlapping arc shaped fan blades makes it possible to optimize the chord lenght and blade outlet angle. This results in higher static pressure and quieter operation over the entire operating range.
Rotating currents for reduced loss
The use of a thinner scroll allows rectification of rotating currents within the scroll.
Higher static pressure
The fan diameter has been increased and blade width optimized, resulting in higher static pressure.
Higher static pressure and reduced pressure loss
In addition to increasing the scroll wrap angle and boosting the static pressure, the outflow angle has been optimized to reduce pressure loss in the outflow area.
α
θ

- **Indoor Unit Connectability**
  The indoor unit is connectable up to 130% of outdoor unit capacity

Specifications

VAM-FA

Ventilation

VAM800FA

VAM-FA			150	250	350	500	650	800	1000	1500	2000
Temperature exchange efficiency (%)		ultra-high	74	72	75	74	74	74	75	75	75
		high	74	72	75	74	74	74	75	75	75
		low	79	77	80	77	77	76	76.5	78	78
Enthalpy exchange efficiency (%)	for heating	ultra-high	64	64	65	62	63	65	66	66	66
		high	64	64	65	62	63	65	66	66	66
		low	69	68	70	67	66	67	68	68	70
	for cooling	ultra-high	58	58	61	58	58	60	61	61	61
		high	58	58	61	58	58	60	61	61	61
		low	64	62	67	63	63	62	63	64	66
Power Supply		VE	1 ~, 220~240V, 50Hz								
Sound pressure level dB(A)	Heat exchange mode	ultra-high	27-28.5	28-29	32-34	33-34.5	34.5-35.5	36-37	36-37	39.5-41.5	40-42.5
		high	26-27.5	26-27	31.5-33	31.5-33	33-34	34.5-36	35-36	38-39	38-41
		low	20.5-21.5	21-22	23.5-26	24.5-26.5	27-28	31-32	31-32	34-36	35-37
	Bypass mode	ultra-high	27-28.5	28-29	32-34	33.5-34.5	34.5-35.5	36-37	36-37	40.5-41.5	40-42.5
		high	26.5-27.5	27-28	31-32.5	32.5-33.5	34-35	34.5-36	35.5-36	38-39	38-41
		low	20.5-21.5	21-22	24.5-26.5	25.5-27.5	27-28.5	31-33	31-32	33.5-36	35-37
Casing			galvanised steel plate								
Insulation Material			self-extinguishable urethane foam								
Dimensions	HxWxD	mm	269 x 760 x 509		285 x 812 x 800		348 x 988 x 852		348x988x1,140	710x1,498x852	710x1,498x1,140
Weight		kg	24		33		48		61	132	158
Heat Exchange System			air to air cross flow total heat (sensible heat + latent heat) exchange								
Heat Exchange Element Material			specially processed non-flammable paper								
Air Filter			multidirectional fibrous fleeces								
Fan	Type		sirroco fan								
	Air Flow Rate (m^3/h)	ultra-high	150	250	350	500	650	800	1,000	1,500	2,000
		high	150	250	350	500	650	800	1,000	1,500	2,000
		low	110	155	230	350	500	670	870	1,200	1,400
	External static pressure (Pa)	ultra-high	69	64	98	98	93	137	157	137	137
		high	39	39	70	54	39	98	98	98	78
		low	20	20	25	25	25	49	78	49	59
Motor Output		kW	0.030 x 2		0.090 x 2		0.140 x 2	0.230 x 2		0.230 x 4	
Connection Duct Diameter		mm	Ø 100	Ø 150		Ø 200		Ø 250		Ø 350	
Unit ambient condition			-15°C ~ +50°CDB, 80% RH or less								

Notes:
- Air flow rate can be changed over to low mode or high mode.
- Sound pressure level is measured at 1.5m below the center of the body.
- Sound pressure level is measured in an anechoic chamber.
  Sound pressure levels generally become higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound pressure level at the air discharge port is about 8dB higher than the unit's sound level.
- Even when the outdoor temperature is below -15°C, the system is operable down to -20°C with the preheater installed at the outdoor air intake side.

VKM-GAM

Ventilation, DX coil & humidifier

VKM80-100GAM

					VKM50GAM	VKM80GAM	VKM100GAM
DX coil capacity	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Casing	Material				Galvanised steel plate		
Dimensions	Height			mm	387	387	387
	Width			mm	1,764	1,764	1,764
	Depth			mm	832	1,214	1,214
Weight				kg	102	120	125
Fan	Type				Sirocco fan		
	Air flow rate	Heat exchange mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
		Bypass mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
	External static pressure		Ultra-high	Pa	160	140	110
			High	Pa	120	90	70
			Low	Pa	100	70	60
	Motor	Output		W	2 x 280	2 x 280	2 x 280
Temperature exchange efficiency			Ultra-high	%	76	78	74
			High	%	76	78	74
			Low	%	77.5	79	76.5
Enthalpy exchange efficiency	Cooling		Ultra-high	%	64	66	62
			High	%	64	66	62
			Low	%	67	68	66
	Heating		Ultra-high	%	67	71	65
			High	%	67	71	65
			Low	%	69	73	69
Humidifier	System				Natural evaporating type		
	Amount			kg/h	2.7	4.0	5.4
	Feed water pressure			MPa	0.02 ~ 0.49	0.02 ~ 0.49	0.02 ~ 0.49
	N° of elements				1	1	2
Operation range	Around unit				0°C ~ 40°CDB, 80% RH or less		
	Outdoor air				-15°C ~ 40°CDB, 80% RH or less		
	Return air				0°C ~ 40°CDB, 80% RH or less		
Sound level - 230V	Heat exchange mode	Sound pressure	Ultra-high	dBA	37.5	39	39.5
			High	dBA	35.5	37	37.5
			Low	dBA	33	34	34.5
	Bypass mode	Sound pressure	Ultra-high	dBA	37.5	39	39.5
			High	dBA	35.5	37	37.5
			Low	dBA	33	34	34.5
Piping connection	Liquid	Type			flare connection	flare connection	flare connection
		Diameter		mm	6.4	6.4	6.4
	Gas	Type			flare connection	flare connection	flare connection
		Diameter		mm	12.7	12.7	12.7
	Water supply			mm	6.4	6.4	6.4
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Air filter					Multidirectional fibrous fleeces		
Connection duct diameter				mm	Ø 200	Ø 250	Ø 250
Power supply				V1	1 ~, 50Hz, 220-240V		

Notes:
- Indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDBIndoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB
- Humidifying capacity is based on: Indoor temperature: 20°CDB, 15°CWB, outdoor temperature: 7°CDB, 6°CWB
- Operation sound is measured at 1.5m below the center of the body.
- Sound values are measured in an anechoic chamber built in accordance with JIS C 1502 condition. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound level at the air discharge port is about 8dB higher than the unit's operating sound.
- For operation in a quiet room, it is required to take measures to lower the sound, for example install more than 2m soft duct near the air discharge grill.
- Air flow rate can be changed over to Low mode or High mode.
- Normal amplitude, input, efficiency depend on the other above conditions

VKM-GA

Ventilation & DX coil

VKM80-100GA

					VKM50GA	VKM80GA	VKM100GA
DX coil capacity	Cooling			kW	4.71	7.46	9.12
	Heating			kW	5.58	8.79	10.69
Casing	Material				Galvanised steel plate		
Dimensions	Height			mm	387	387	387
	Width			mm	1,764	1,764	1,764
	Depth			mm	832	1,214	1,214
Weight				kg	96	109	114
Fan	Type				Sirocco fan		
	Air flow rate	Heat exchange mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
		Bypass mode	Ultra-high	m^3/h	500	750	950
			High	m^3/h	500	750	950
			Low	m^3/h	440	640	820
	External static pressure		Ultra-high	Pa	180	170	150
			High	Pa	150	120	100
			Low	Pa	110	80	70
	Motor	Output		W	2 x 280	2 x 280	2 x 280
Temperature exchange efficiency			Ultra-high	%	76	78	74
			High	%	76	78	74
			Low	%	77.5	79	76.5
Enthalpy exchange efficiency	Cooling		Ultra-high	%	64	66	62
			High	%	64	66	62
			Low	%	67	68	66
	Heating		Ultra-high	%	67	71	65
			High	%	67	71	65
			Low	%	69	73	69
Operation range	Around unit				0°C ~ 40°CDB, 80% RH or less		
	Outdoor air				-15°C ~ 40°CDB, 80% RH or less		
	Return air				0°C ~ 40°CDB, 80% RH or less		
Sound level - 230V	Heat exchange mode	Sound pressure	Ultra-high	dBA	38.5	41	40.5
			High	dBA	36.5	38	38.5
			Low	dBA	34.5	36	36
	Bypass mode	Sound pressure	Ultra-high	dBA	38.5	41	40.5
			High	dBA	36.5	38	38.5
			Low	dBA	34.5	36	36
Piping connection	Liquid	Type			flare connection	flare connection	flare connection
		Diameter		mm	6.4	6.4	6.4
	Gas	Type			flare connection	flare connection	flare connection
		Diameter		mm	12.7	12.7	12.7
	Drain				PT3/4 external thread		
Insulation material					Self-extinguishable urethane foam		
Heat exchange system					Air to air cross flow total heat (sensible + latent heat) exchange		
Heat exchange element					Specially processed non-flammable paper		
Air filter					Multidirectional fibrous fleeces		
Connection duct diameter				mm	Ø 200	Ø 250	Ø 250
Power supply				V1	1 ~, 50Hz, 220-240V		

Notes:
- Cooling: indoor temperature: 27°CDB, 19°CWB, outdoor temperature: 35°CDB
- Heating: indoor temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB
- Operation sound is measured at 1.5m below the center of the body.
- Sound values are measured in an anechoic chamber built in accordance with JIS C 1502 condition. Operating sound level generally becomes higher than this value depending on the operating conditions, reflected sound, and peripheral noise.
- The sound level at the air discharge port is about 8dB higher than the unit's operating sound.
- Air flow rate can be changed over to Low mode or High mode.
- Normal amplitude, input, efficiency depend on the other above conditions

Control Systems

HRV can also be connected to :

DS-net

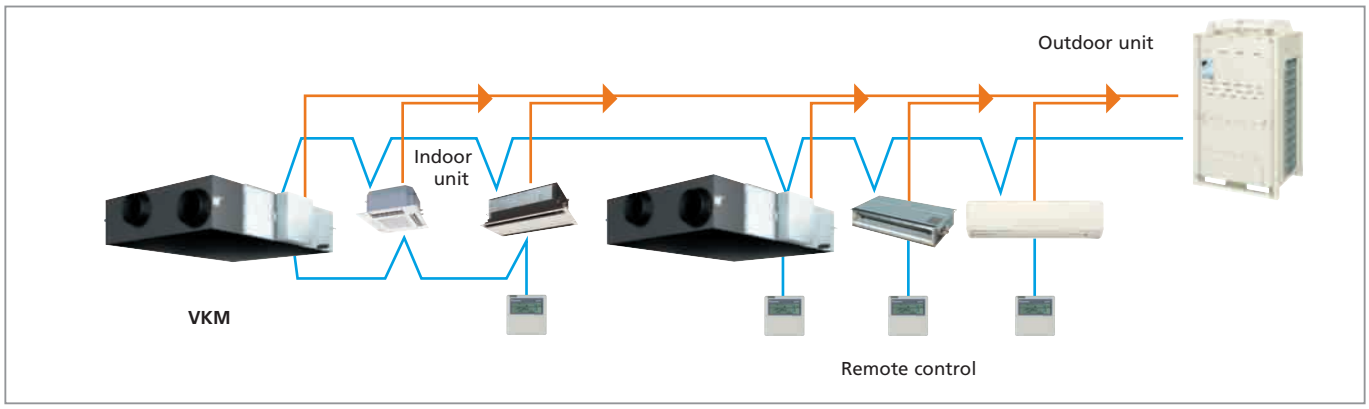
intelligent touch Controller

intelligent Manager

BACnet Gateway

DMS-IF

Operation of the air conditioner using the remote control is interlocked with HRV operation, greatly simplifying overall system control. The same remote control centralizes air conditioning and ventilation operations, obviating any need for HRV remote control installation work. Using a centralized remote control also frees the user to choose from a wide range of control systems that integrate air conditioning and ventilation. By incorporating a variety of centralized control equipment, the user can build a large, high grade centralized control system.



BRC1D52

air conditioner remote control

BRC301B61

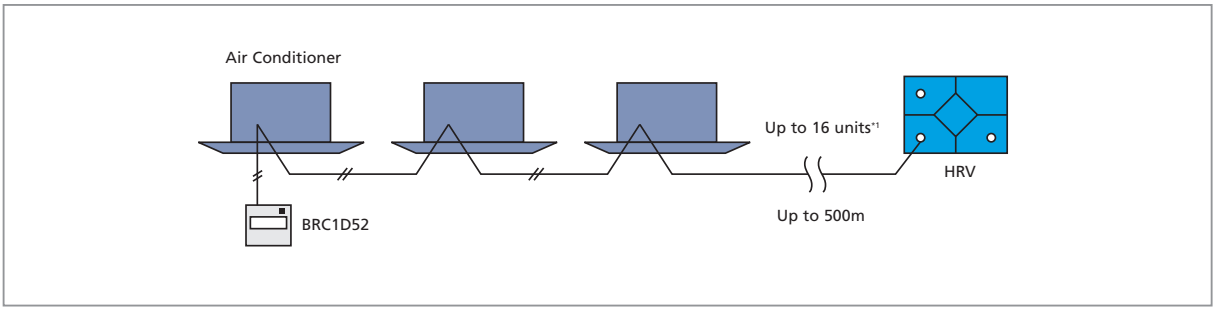
VAM remote control

1 Individual Control Systems

- Simultaneous ON/OFF of HRV and air conditioner (BRC1D52)
- ON/OFF of VAM (BRC301B61)
- Independent operation of HRV
- Airflow rate switching (initial setting)
- Ventilation mode switching (initial setting)
- Self diagnostic functions
- Filter sign display and reset
- Timer settings, simultaneous control with air conditioner (BRC1D52)
- Timer settings (BRC301B61)
- Fresh-up mode switching (Selectable: supply rich mode, exhaust rich mode; initial setting)

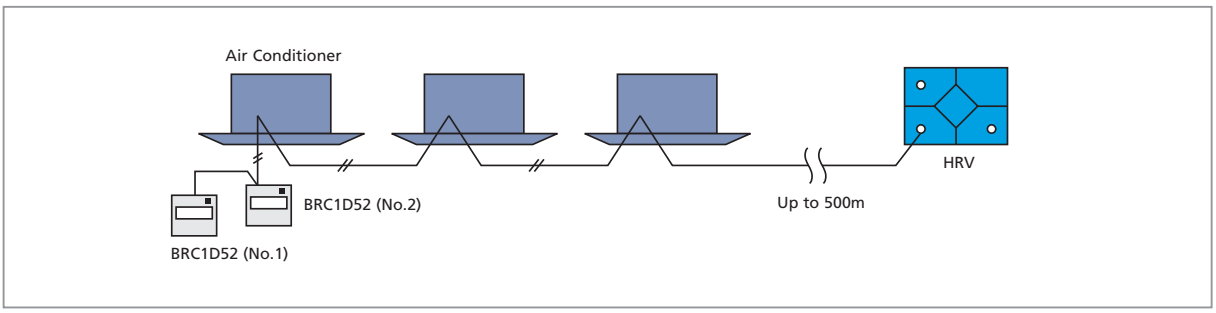
→ A variety of control systems can be controlled using only the BRC1D52

- **Group Control**
  One air conditioner remote control simultaneously controls up to 16 air conditioning and HRV units.

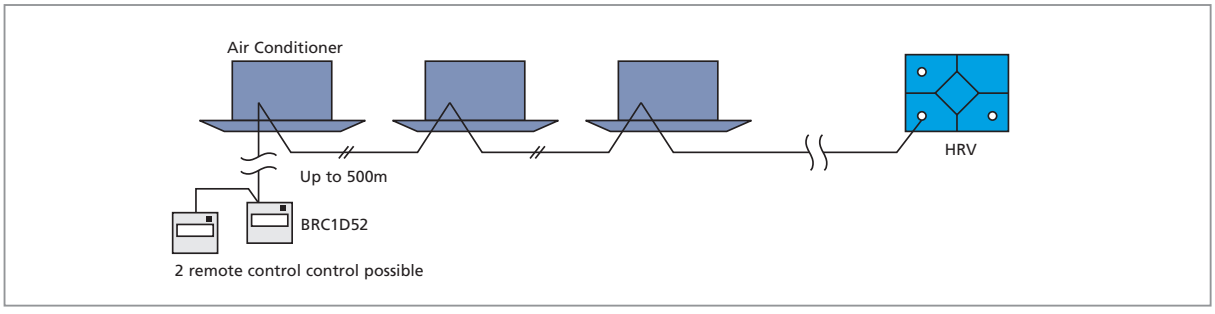


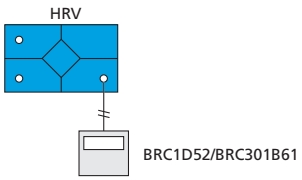
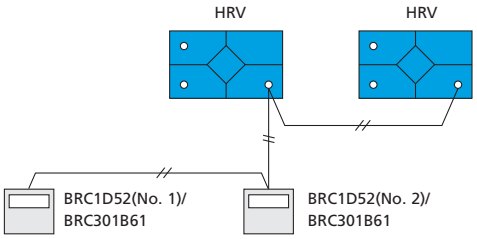
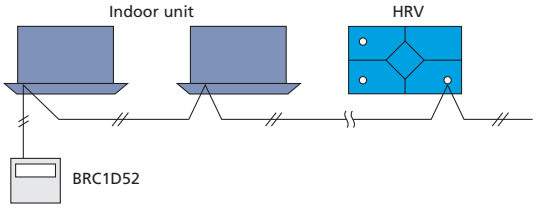
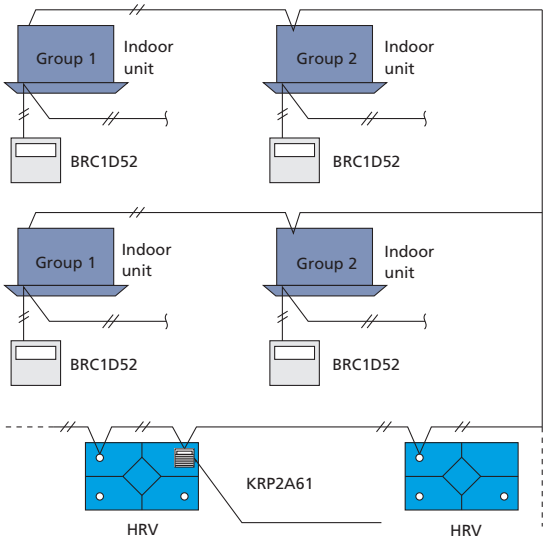
*1: Count VKM unit as two air conditioners. For details, see Table 1 on page 15.

- **Control using 2 remote controls**
  Allows control of air conditioning and HRV units from two locations by connecting two air conditioner remote controls. (group control is possible)



- **Long-distance Remote Control**
  Remote operation control - from a distant control room for example, is possible thanks to wiring of up to 500 m. (2 remote control control possible)



		System construction	System characteristics	Necessary accessories
INDEPENDENT OPERATION SYSTEM	INDEPENDENT OPERATION		• Independent operation of HRV is possible • Air conditioner remote control can be used	BRC1D52 BRC301B61
	SIMULTANEOUS OPERATION OF MULTIPLE UNITS		• Operation is possible using 2 remote controls • Multiple HRV units can be simultaneously controlled in batch. (Up to 8 HRV units can be connected)	BRC1D52 BRC301B61
AIR CONDITIONING INTERLOCKED CONTROL (VRV, SKY AIR) SYSTEM	STANDARD SYSTEM	 During group control operation, the VKM unit has a capacity equivalent to 2 standard indoor units. Up to 16 standard indoor units can be connected at the same time. Connectable indoor units: VKM 0 1 2 3 4 5 6 7 8 Max. n° of VRV 16 14 12 10 8 6 4 2 0 Note: The VKM uses 2 remote control addresses per unit. The number of units that can be group controlled is shown above.	• Multiple VRV indoor units or HRV units can be connected and controlled in batches, with interlocked operation of HRV and air conditioners by using the air conditioner remote control. • The HRV unit can also be operated independently using the remote control for the indoor unit, even if the indoor unit is not in operation	BRC1D52
	MULTIPLE GROUPS INTERLOCKED OPERATION SYSTEM		• Can control interlocked operation of multiple groups of VRV or Sky Air indoor units • When one of the multiple groups operates, HRV units are interlocked and operate simultaneously	BRC1D52

BRC301B61 only available for VAM-FA

2 Centralised Control Systems

By combining the (optional) centralised control equipment listed below, the user can achieve a wide range of comprehensive centralised control systems for air conditioning and ventilation.

DCS302C51

Centralised remote control - DCS302C51

- 64 groups (zones) of indoor units can be controlled individually by means of the LCD remote control.
- Max. 64 groups (128 indoor units) can be controlled
- Max. 128 groups (128 indoor units) can be controlled via 2 centralised remote controls, in separate locations.
- Zone control
- Malfunction code display
- Max. wiring length 1,000 m (total : 2,000 m)
- Combination with unified ON/OFF control, schedule timer and BMS system
- Airflow volume and direction can be controlled individually for indoor units in each group operation.
- Ventilation volume and mode can be controlled for Heat Reclaim Ventilation (VKM).
- Up to 4 ‘operation/stop’ pairs can be set per day by connecting a schedule timer.

DCS301B51

Unified ON/OFF control - DCS301B51

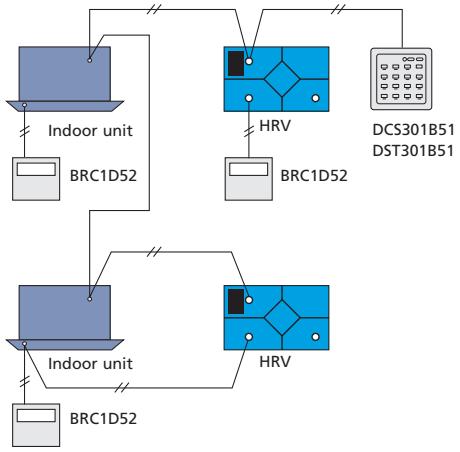
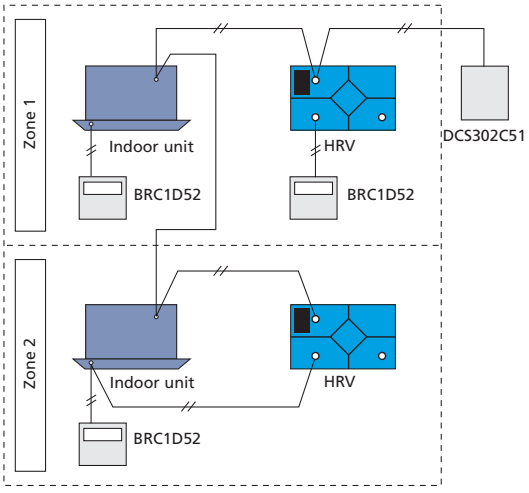
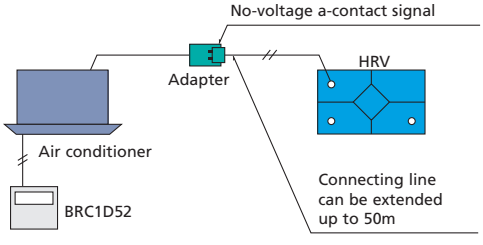
- One unit can turn ON/OFF up to 16 groups (128 units) of HRV and air conditioner units individually or in a batch.
- Lamps display operation and failure status of the connected HRV and air conditioner units.
- Up to 8 units can be linked to allow centralized control of up to 128 units.

DST301B51

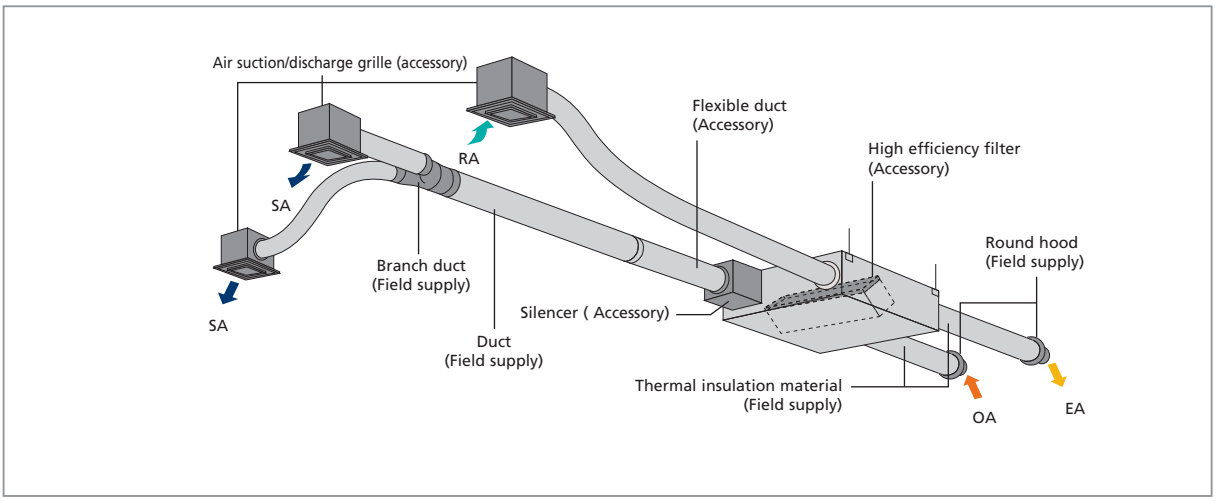
Schedule timer - DST301B51

- One unit can control the operation of up to 128 HRV and air conditioner units on a weekly schedule.
- Can set two ON/OFF operations per day for a period of one week.

Number of units that can be connected per system	
Centralised remote control	2 units
Unified on/off control	8 units
Schedule timer	1 unit

		System construction	System characteristics	Necessary accessories
AIR CONDITIONING INTERLOCKED CENTRALISED CONTROL SYSTEM	BATCH / INDIVIDUAL CONTROL SYSTEM		**Unified ON/OFF control - DCS301B51** • One control can control the on/off operation of 16 groups of units collectively or individually • Up to 8 controls can be installed in one centralised transmission line (in one system), which enables control of up to 128 groups. (16 groups x 8 = 128 groups) **Schedule timer - DST301B51** • One schedule timer can control the weekly schedule of up to 128 units HRV remote control can set the individual operation of each HRV unit Control system can be expanded depending on its purposes by combining a variety of centralised control equipment	DCS301B51 or DST301B51, BRC1D52 If necessary: DCS302C51
	ZONE CONTROL SYSTEM		Centralised remote control - DCS302C51 • The centralised remote control provides settings and monitoring functions and can control up to 128 VRV and HRV units. A special adapter is required to connect Sky Air to the centralised line. • Control is possible in 3 different patterns: individual, batch or zone • Multiple groups can be controlled within the same zone • Multiple HRV units can be operated independently • System without air conditioning or HRV remote controls can be constructed • Control system can be expanded depending on requirements by combining a variety of centralised control systems	DCS302C51, BRC1D52 If necessary: DCS301B51, DST301B51
COMBINA-TION WITH OTHER TYPES OF AIR CONDI-TIONERS			• Simultaneous operation of HRVs and air conditioners is possible via BRC1D52 • Use of the HRV remote control enables to change settings or operate HRVs independently	Connection adapter (no-voltage-a-contact-signal)

Options



VAM remote control

Air conditioner remote control

Centralised remote control

Unified ON/OFF control

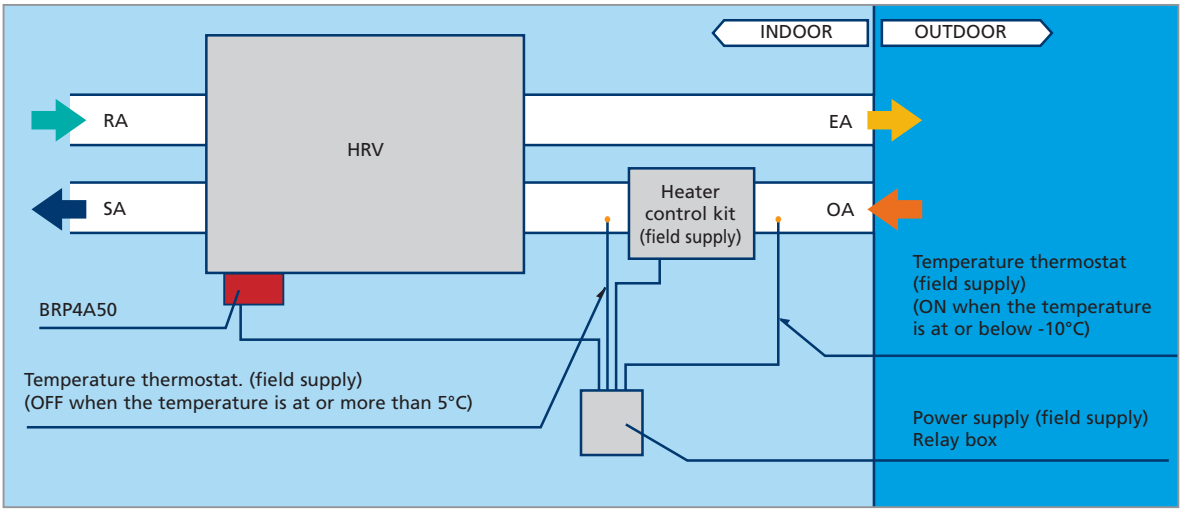
Schedule timer

Description			Reference									
VAM remote control			BRC301B61*5									
Air conditioner remote control			BRC1D52									
Centralised remote control			DCS302C51									
Unified on/off control			DCS301B51									
Schedule timer			DST301B51									
PC board adapter	Wiring adapter for electrical appendices		KRP2A61									
	For humidifier (running ON signal output)		KRP50-2									
	For heater control kit		BRP4A50									
	For wiring	indoor unit	FXZQ	FXFQ	FXCQ	FXKQ	FXMQ	FXSQ	FXDQ-N	FXHQ	FXAQ	FXLQ/FXNQ
		Reference	KRP1B57*	-	KRP1B61*	KRP1D61			KRP1B56	KRP1B3	-	KRP1B61
	Installation box for adapter PCB		KRP1B101 *1/*4	KRP1H98* *2/*3	KRP1B96 *2/*3	-	-	KRP4A91 *6	KRP1B101 *1/*4	KRP1C93 *3	KRP4A93 *2/*3	-

Notes : 1. Installation box is necessary for each adapter marked with *
2. Up to 2 adapters can be fixed per installation box
3. Only 1 installation box can be installed per indoor unit
4. Up to 2 installation boxes can be installed per indoor unit
5. Necessary when operating VAM independently. When operating interlocked with other air conditioners, use the remote controls of the air conditioners
6. Installation box is necessary for second adapter

1 PC BOARD ADAPTER FOR HEATER CONTROL KIT - BRP4A50

When the installation of an electric heater is required in a cold region, this adapter with an internal timer function eliminates the complicated timer connecting work necessary with conventional heaters.



Notes when installing:

- Examine fully installation location and specification for using the electric heater based on the standards and regulations of each country.
- Supply the electric heater and safety production devices (such as a relay and a thermostat etc) which meet the on site standards and regulations of each country
- Use a non-flammable connecting duct to the electric heater. Be sure to allow 2m or more between the electric heater and HRV for safety.
- For the HRV units, use a different power supply from that of the electric heater and install a circuit breaker for each of them.

Silencer

Duct adapter

Description	VAM150FA	VAM250FA	VAM350FA
High efficiency filter	YAFM323F15	YAFM323F25	YAFM323F35
Replacement for air filter	YAFF323F15	YAFF323F25	YAFF323F35

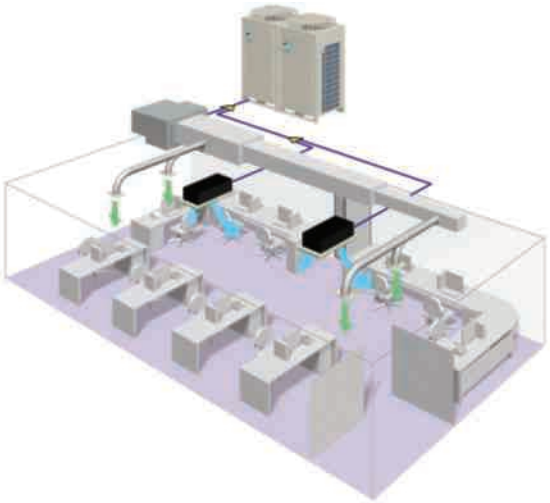
Description		VAM500FA	VAM650FA	VAM800FA
Silencer	Reference	KDDM24A50	KDDM24A100	
	Nom. piping diameter	Ø 200mm	Ø 200mm	Ø 250mm
High efficiency filter		YAFM323F50	YAFM323F65	
Replacement for air filter		YAFF323F50	YAFF323F65	

Description		VAM1000FA	VAM1500FA	VAM2000FA
Silencer	Reference	KDDM24A100	KDDM24A100 x 2	
	Nom. piping diameter	Ø 250mm		
High efficiency filter		YAFM323F100	YAFM323F65 x 2	YAFM323F100 x 2
Replacement for air filter		YAFF323F100	YAFF323F65 x 2	YAFF323F100 x 2
Duct adapter	Reference	-	YDFA25A1	
	Nom. piping diameter	-	Ø 250mm	

Description		VKM50GA(M)	VKM80GA(M)	VKM100GA(M)
Silencer	Reference	-	KDDM24B100	
	Nom. piping diameter	-	Ø 250mm	
High efficiency filter		KAF241G80M	KAF241G100M	
Replacement for air filter		KAF242G80M	KAF242G100M	

FXMQ-MFV1
Fresh Air Treatment Unit

Features



Combined fresh air treatment and air conditioning via a single system.

Both fresh air treatment and air conditioning can be achieved successfully in a single system via heat pump technology without the usual design problems associated with balancing air supply and discharge. Air conditioning fan coil units and an outdoor air treatment unit can be connected to the same refrigerant line, resulting in enhanced design flexibility and a significant reduction in total system costs.

Line-up

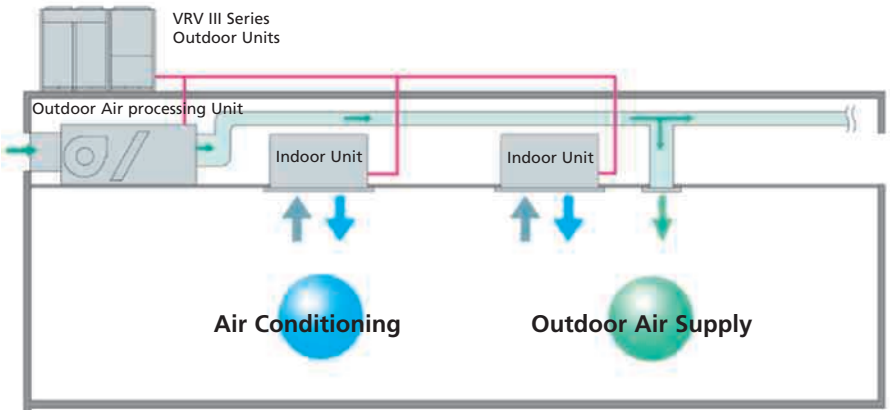
Air flow rate (m³/h)	1.080	1.680	2.100
FXMQ125MFV1	✗		
FXMQ200MFV1		✗	
FXMQ250MFV1			✗

1 Air Conditioning And Fresh Air Treatment Via a Single System

Air conditioning and fresh air treatment can be accomplished via a single system.

Connection Conditions

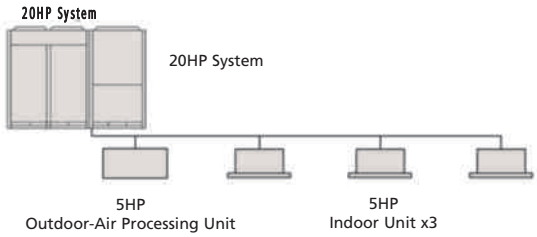
The following restrictions must be observed in order to maintain the indoor units' connection to the same system.



- The total connected capacity of the standard indoor units and fresh air treatment units must be between 50% and 100% of the capacity of the air conditioning outdoor units. The connected capacity of the fresh air treatment units must not exceed 30% of the capacity of the air conditioning outdoor units.
- A fresh air treatment unit can also be used exclusively. The connected capacity of the fresh air treatment unit must be between 50% and 100% of the capacity of the air conditioning outdoor unit.
- Connectable outdoor units: VRV and systems

System Example

Check that system connected capacity is within the appropriate range.



- Total connected capacity of standard indoor units and fresh air treatment unit does not exceed 100%.
- System capacity of 20 HP = indoor unit capacity of 20 HP. Connected capacity of fresh air treatment unit does not exceed 30% of this.
- Since system capacity of 20 HP x 0.3 = 6 HP > fresh air treatment unit capacity = 5 HP.

2 100% Fresh Air Intake Possible

By introducing outdoor air into the room and adjusting the outdoor air temperature via fixed discharge temperature control, the system reduces the load on the air conditioner.

3 "Super Wiring" System

A Super Wiring system is used to enable the shared use of wiring between indoor units, outdoor units and the centralised remote control.

This system makes it easy for the user to retrofit the existing system with a centralised remote control, simply by connecting it to the outdoor units.

Thanks to a non polarity wiring system, incorrect connections become impossible and installation time is reduced.

Note:
Linked control of FXMQ-MFV1 and HRV is not supported.

Specifications

FXMQ-MFV1

FXMQ200-250MFV1

Ventilation

					FXMQ125MFV1	FXMQ200MFV1	FXMQ250MFV1
Capacity	Cooling			kW	14.0	22.4	28.00
	Heating			kW	8.9	13.9	17.40
Power Input	Cooling			kW	0.359	0.548	0.638
	Heating			kW	0.359	0.548	0.638
Casing	Material				Galvanised steel	Galvanised steel	Galvanised steel
Dimensions	Unit	Height		mm	470	470	470
		Width		mm	744	1380	1380
		Depth		mm	1100	1100	1100
Weight	Unit			kg	86	123	123
Heat Exchanger	Dimensions	Nr of Rows			3	3	3
		Fin Pitch		mm	2.00	2.00	2.00
		Face Area		m^2	0.28	0.65	0.65
		Nr of Stages			26	26	26
	Fin	Fin type			Cross fin coil	Cross fin coil	Cross fin coil
Fan	Type				Sirocco fan	Sirocco fan	Sirocco fan
	Air Flow Rate	Cooling	Medium	m^3/min	18.0	28.0	35.0
		Heating	Medium	m^3/min	18.0	28.0	35.0
	External static pressure	Standard		Pa	185	225	205
	Motor	Model			D13/4G2DA1	D13/4G2DA1	D13/4G2DA1
		Output (high)		W	380	380	380
		Drive			Direct drive	Direct drive	Direct drive
Piping connections	Liquid (OD)	Type			Flare connection	Flare connection	Flare connection
		Diameter		mm	9.5	9.5	9.5
	Gas	Type			Flare connection	Brazing/Brazing connection	Brazing/Brazing connection
		Diameter		mm	15.9	19.1	22.2
	Drain	Diameter		mm	PS1B	PS1B	PS1B
	Heat Insulation				Glass fiber	Glass fiber	Glass fiber
Air Filter					As option	As option	As option
Refrigerant control					Electronic expansion valve	Electronic expansion valve	Electronic expansion valve
Temperature control					Microprocessor thermostat for cooling and heating	Microprocessor thermostat for cooling and heating	Microprocessor thermostat for cooling and heating
Safety devices					Fuse	Fuse	Fuse
Safety devices					Fan motor thermal protector	Fan motor thermal protector	Fan motor thermal protector
Power Supply	Frequency			Hz	50	50	50
	Voltage			V	220-240	220-240	220-240
Current	Minimum circuit amps (MCA)			A	1.90	3.30	3.80
	Maximum fuse amps (MFA)			A	15	15	15
	Full load amps (FLA)			A	1.50	2.60	3.00
Voltage range	Minimum			V	-10%	-10%	-10%
	Maximum			V	10%	10%	10%

Notes:
- Nominal cooling capacities are based on : outdoor temperature : 33°CDB, 28°CWB (68%RH), discharge set temperature : 18°CDB, equivalent piping length 7.5m (horizontal)
- Nominal heating capacities are based on : outdoor temperature : 0°CDB, -2.9°CWB (50%RH), discharge set temperature : 25°CDB, equivalent piping length 7.5m (horizontal)
- Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
- Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method(gravity method) 50% or more.
- Voltage range : units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed range limits.
- Maximum allowable voltage range variation between phases is 2%.
- MCA/MFA : MCA = 1.25 x FLA
- MFA <= 4 x FLA
- Next lower standard fuse rating minimum 15A
- Select wire size based on the MCA
- Instead of a fuse, use a circuit breaker

Control Systems

FXMQ-MFV1 can also be connected to :

DS-net

intelligent touch Controller

intelligent Manager

BACnet Gateway

SMS-IF

As with the VRV III system, a variety of control systems can be deployed, including remote control from distances of up to 500m.

Note:

- Group control is not possible between this unit and standard type indoor units. Connect remote controllers to each unit.
- Not all functions are available when using centralised control. Please refer to your local installer for detailed information.

BRC1D52

air conditioner remote control

1 Individual Control Systems

- → Simultaneous ON/OFF of HRV and air conditioner (BRC1D52)
- → Airflow rate switching (initial setting)
- → Ventilation mode switching (initial setting)
- → Self diagnostic functions
- → Filter sign display and reset
- → Timer settings, simultaneous control with air conditioner (BRC1D52)

DCS302C51

centralised remote control

2 Centralised remote control

A central control system compatible with the VRVIII System can be installed. Providing individual control of 64 groups (zones) of indoor units

- → A maximum of 64 groups (128 indoor units, max. 10 outdoor units) can be controlled
- → A maximum of 128 groups (128 indoor units, max. 10 outdoor units) can be controlled via 2 centralised remote controls in separate locations
- → Zone control
- → Group control (up and down buttons are added for group selection)
- → Control of HRV air flow direction and air flow rate
- → Expanded timer function
- → Malfunction code display
- → Maximum wiring length of 1,000m (total: 2,000m)

Note:

- The remote control wired to the FXMQ-MFV1 cannot be set as master remote control. Otherwise, when set to 'auto', the operation mode will switch according to outdoor air conditions, regardless of indoor temperature.
- Temperature setting and PPD are not possible, even when Intelligent Touch Controller or Intelligent Manager are installed.

DCS301B51

3 Unified ON/OFF control

Providing simultaneous and individual control of 16 groups of indoor units
- → A maximum of 16 groups (128 indoor units) can be controlled
- → 2 remote controls in separate locations can be used
- → Operating status indication (normal operation, alarm)
- → Centralised control indication
- → Maximum wiring length of 1,000m (total: 2,000m)

DST301B51

4 Schedule timer

Enabling 64 groups to be programmed
- → A maximum of 128 indoor units can be controlled
- → 8 types of weekly schedule
- → A maximum of 48 hours back-up power supply
- → Maximum wiring length of 1,000m (total: 2,000m)

Options

Description			FXMQ125MFV1	FXMQ200MFV1	FXMQ250MFV1
Operation / Control	Operation remote control		BRC1D52		
	Central remote control		DCS302C51		
	Unified ON/OFF control		DCS301B51		
	Schedule Timer		DST301B51		
	Wiring adapter for electrical appendices (1)		KRP2A61		
	Wiring adapter for electrical appendices (2)		KRP4A51		
Filters	Long-life replacement filter		KAFJ371L140	KAFJ371L280	
	High-efficiency filter	65%	KAFJ372L140	KAFJ372L280	
		90%	KAFJ373L140	KAFJ373L280	
Filter chamber *1			KDJ3705L140	KDJ3705L280	
Drain pump kit			KDU30L250VE		
Adapter for wiring			KRP1B61		

Notes : *1 Filter chamber has a suction-type flange. (Main unit does not).
Dimensions and weight of the equipment may vary depending on the options used.
Some options may not be usable due to the equipment installation conditions. Please confirm prior to ordering.
Some options may not be used in combination.
Operating sound may increase somewhat depending on the options used.

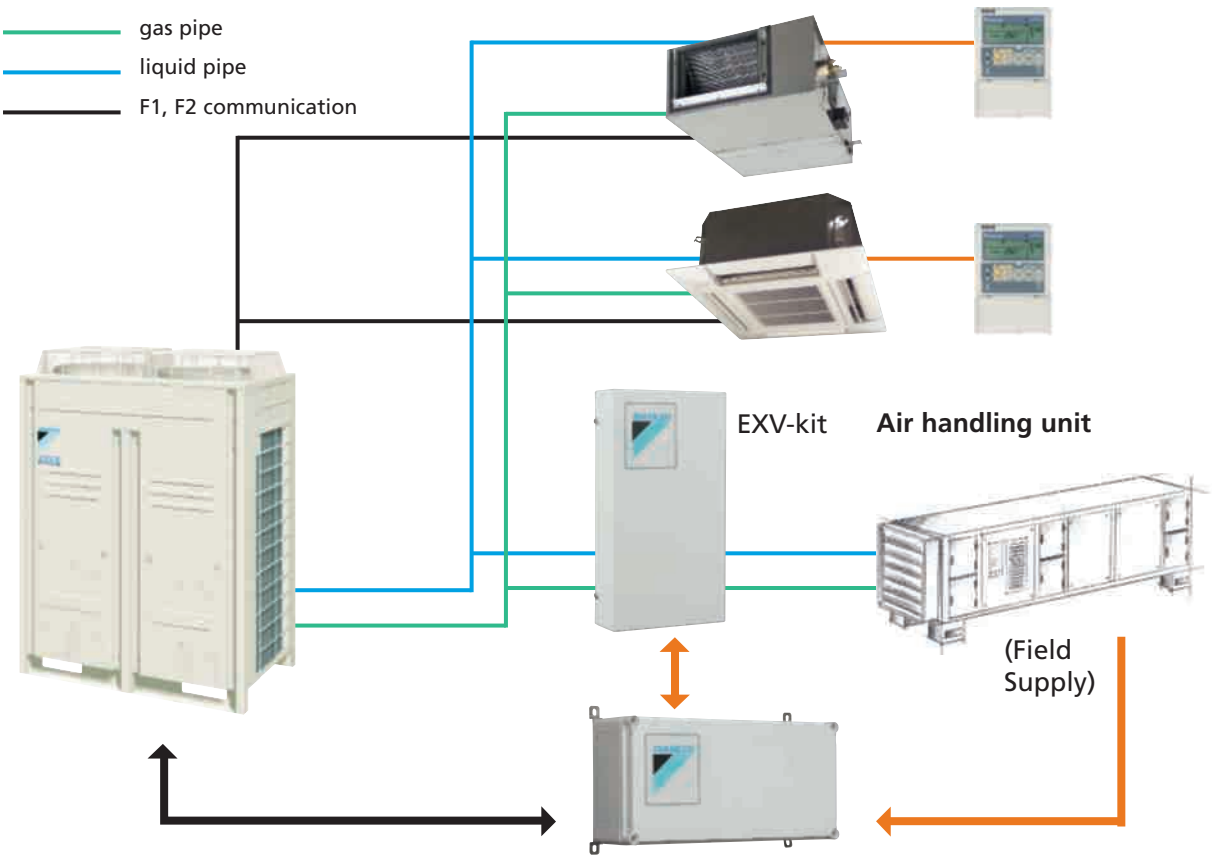
VRV+EXV-kit
VRV Air Handling Application

Features

Daikin has introduced a new range of R-410A inverter condensing units to provide ventilation and air conditioning for air handling installations in medium and large commercial spaces. This system is unique because it combines the flexibility of Daikin VRV units with Air Handling Applications.
Because of the simplicity of the system, it is very easy to design the air conditioning system.

1 System Overview

In order to maximise combination potential, Daikin offers different expansion kits and anown control system.
BRC1D52 is used to set the set joint temperature (connected to the EKEXMCB)



2 Large Range of Expansion Valve Kits (EXV) Possible

	EKEXMCB Capacity Class	Allowed Heat Exchanger Volume (m^3)			Allowed Heat Exchanger Capacity (Kw)		
		min		max	min	max	std
EKEXV	50	0.76	-	0.96	5.0	5.6	6.2
EKEXV	63	0.96	-	1.22	6.4	7.1	7.8
EKEXV	80	1.22	-	1.53	8.1	9.0	9.9
EKEXV	100	1.53	-	1.91	10.1	11.2	12.3
EKEXV	125	1.91	-	2.14	12.6	14.0	15.4
EKEXV	140	2.14	-	3.06	14.4	16.0	17.6
EKEXV	200	3.06	-	3.82	20.2	22.4	24.6
EKEXV	250	3.82	-	4.78	25.2	22.0	30.8

Specifications

1 System Specifications

RXQ-P(A)

Cooling only									
RXQ-P(A)				5	8	10	12	14	16	18
Capacity range			HP	5	8	10	12	14	16	18
Capacity	cooling		kw	14.0	22.4	28.0	33.5	40.0	45.0	49.0
Power input (Nominal)	cooling		kw	3.52	5.56	7.42	9.62	12.4	14.2	16.2
Dimensions	HxWxD		mm	1,680x635x765	1,680x930x765	1,680x930x765	1,680x930x765	1,680x1,240x765	1,680x1,240x765	1,680x1,240x765
Weight			kg	157	185	238	238	315	315	323
Sound Level	sound power	cooling	dBA	72	78	78	80	80	80	83
	sound pressure	cooling	dBA	54	57	58	60	60	60	63
Air Flow Rate (nominal at 230V)	cooling		m/min	95	171	185	196	233	233	239
Operation Range	cooling	min ~ max	°CDB	-5.0 ~ 43.0						
Refrigerant				R-410A						
Power Supply				3N ~ /400V/50Hz						
Max n° of indoor units to be connected				8	13	16	19	23	26	29
Piping connections	liquid (OD)/gas		mm	9.5 / 15.9	9.5 / 19.1	9.5 / 22.2	12.7 / 22.2	12.7 / 28.6	12.7 / 28.6	15.9 / 28.6

2 Combination Table

Combination table

Outdoor unit		CONTROL BOX	EXPANSION VALVE KIT							
		CONTROL Z	CLASS 50	CLASS 63	CLASS 80	CLASS 100	CLASS 125	CLASS 140	CLASS 200	CLASS 250
		EKEXMCB	EKEXV50	EKEXV63	EKEXV80	EKEXV100	EKEXV125	EKEXV140	EKEXV200	EKEXV250
3ph	RXQ5P	x	x	x	x	x	x	x	x	x
	RXQ8P	x	x	x	x	x	x	x	x	x
	RXQ10P	x	x	x	x	x	x	x	x	x
	RXQ12P	x	x	x	x	x	x	x	x	x
	RXQ14PA	x	x	x	x	x	x	x	x	x
	RXQ16PA	x	x	x	x	x	x	x	x	x
	RXQ18PA	x	x	x	x	x	x	x	x	x

X = Quantity determined by connection ratio or maximum number of indoor units (the EKEVX-kit is considered as one of the indoor units

3 Expansion Valve Kit (EXV)

Expansion valve kit

Casing	colour			Ivory White
Dimensions	unit	height	mm	401
		width	mm	215
		depth	mm	78
Weight	unit		kg	2.9
Piping Connection	liquid		mm	9.52
Sound Pressure Level	nominal		dB(A)	45 (max. at 10cm from motor)
Operation Range	cooling	min	°CDB	-5.0
		max	°CDB	46.0

4 Control Box

Control box

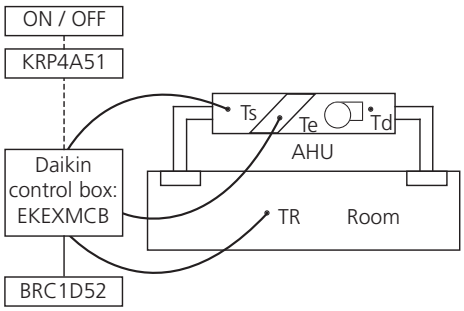
Casing	colour			White grey
Dimensions	unit	height	mm	132
		width	mm	400
		depth	mm	200
Weight	unit		kg	3.5
Operation Range	cooling	min	°CDB	-5.0
		max	°CDB	46.0
Power Supply	name			V3
	phase			1
	frequency		Hz	50
	voltage		V	230
	voltage range	minimum	V	-10%
		maximum	V	10%

Control box

Wiring connections	for power supply	quantity	3
		remark	Earth wire included
	for connection with indoor	quantity	2
		remark	F1-F2
	for remote control	quantity	2
		remark	P1,P2
	for expansion valve kit	quantity	6
		remark	Y1 ~ Y6
	thermistors liquid pipe	quantity	2
		remark	R1,R2
	thermistors gas pipe	quantity	2
		Remark	R3,R4
	thermistor air	Quantity	2
		Remark	R5,R6
	ON/OFF	Remark	T1,T2
Power Supply Intake			Bottom

Control Systems

1 Control of Air Temperature via Daikin Control



Set point can be fixed via standard Daikin wired remote controller. Remote ON/OFF can be achieved by an optional adapter KRP4A51. No external DDC controller should be connected. BRC1D52 is used to set the set point temperature (connected to the EKEXMCB).

Caution: Do not connect the system to DIII-net devices (Intelligent Controller, Intelligent Manager, DMS-IF, BACnet Gateway …) This could result in a malfunction or breakdown of the total system.

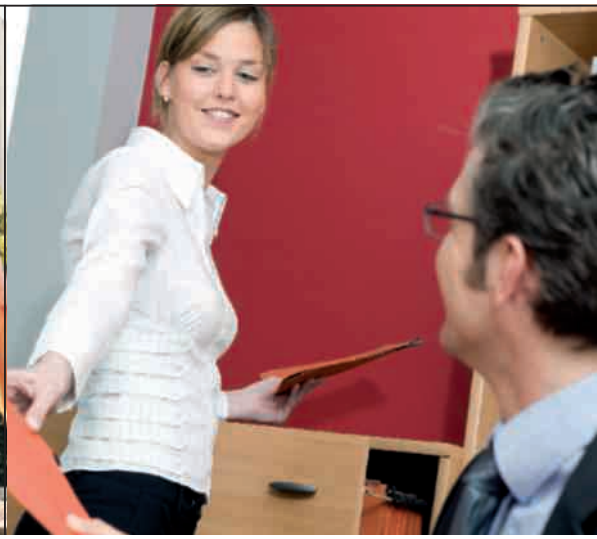
Options

EKEXMCB	
Wired remote control	BRC1D52
Wiring adapter for electrical appendices	KRP4A51
Valve kits	EKEXV 50, 63, 80, 100, 125, 140, 200, 250

Caution: Only use this system in combination with a field supplied air handling unit. Do not connect this system to other indoor units.

Notes

notes



In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment.
This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard.
ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

CE Daikin units comply with the European regulations that guarantee the safety of the product.

VRV products are not within the scope of the Eurovent certification programme

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